# fMTP

Salet, Josh; Kruijne, Wouter; Rijn, van, Hedderik

# *f*MTP: A Unifying Computational Framework of Temporal Preparation Across Time Scales

Josh M. Salet[1*], Wouter Kruijne[1], Sander A. Los[2]
Hedderik van Rijn[1], Martijn Meeter[2]

university of groningen

[1]University of Groningen
[2]Vrije Universiteit Amsterdam

*j.m.salet@rug.nl

## The Story

Temporal preparation is modulated across a vast range of time scales

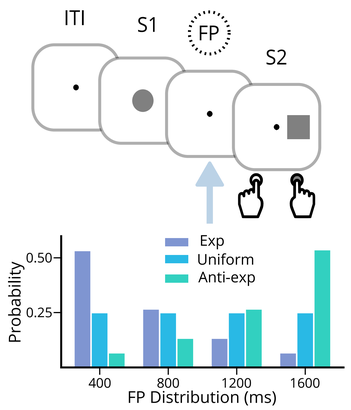
*What is the unifying mechanism giving rise to these phenomena?*

We pursue the view that these phenomena are driven by implicitly learned processes

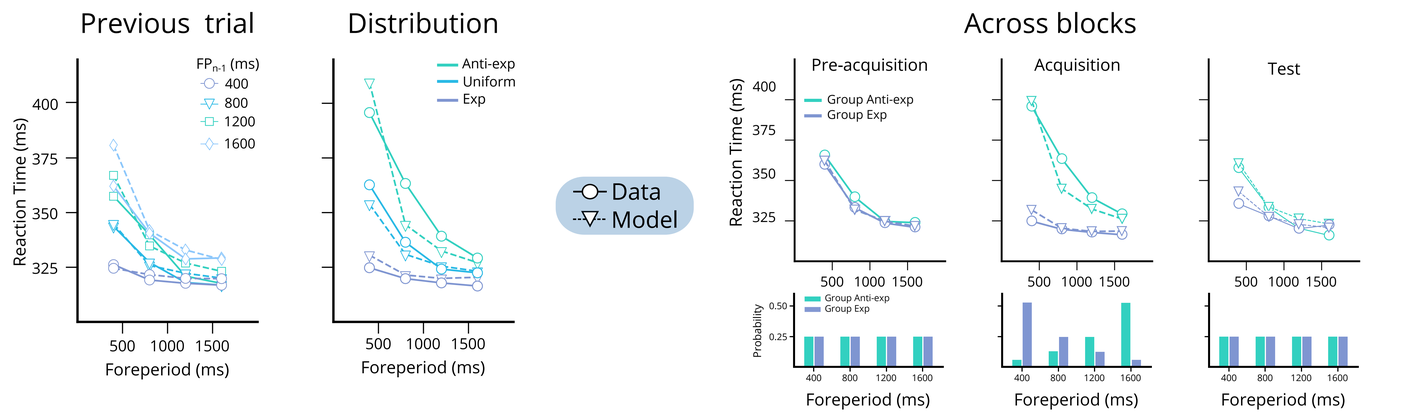
*f*MTP integrates insights on the coding of time, episodic memory, and motor planning

Simulations demonstrate that *f*MTP captures all phenomena

## FP Paradigm

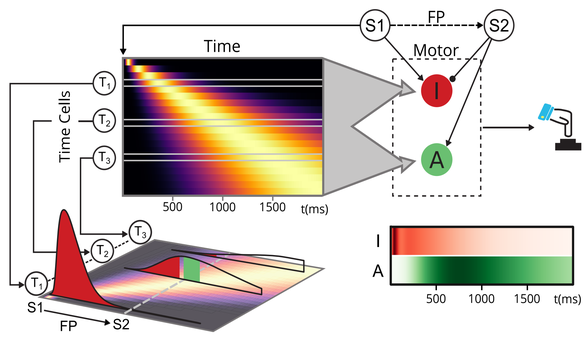



## FP Effects



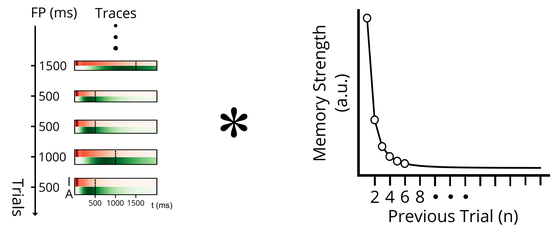

## *f*MTP's Dynamics

### Trace Formation



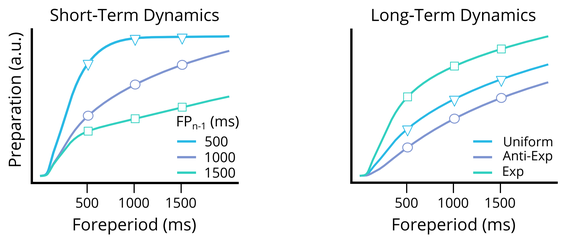

The core of *f*MTP is an implicit associative learning process between time cells and activation- and inhibition motor units

### Trace Retrieval




Previous experiences drive preparation according their recency

### Trace Expression




Strong influence of recent trials gives rise to short-term dynamics

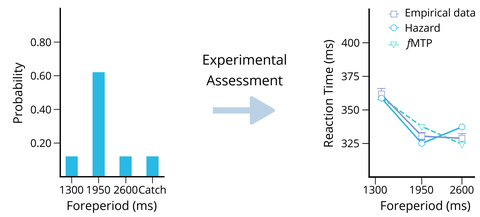
Long-lasting influence of each trial gives rise to long-term dynamics

## *f*MTP vs Hazard

Hazard accounts: Preparation is controlled by a process that follows the conditional probability

| | Previous trial | Distribution | Across Blocks |
|---|---|---|---|
| *f*MTP | ✓ | ✓ | ✓ |
| Hazard Function | × | ? | × |

*f*MTP and the Hazard function make different predictions regarding the Gaussian FP distribution




We show the data to be consistent with *f*MTP and to deviate from the Hazard function

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